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## GEOGRAPHIC INTELLIGENCE REVIEW



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THE IRAN-USSR BOUNDARY SITUATION

Since the birth of the Soviet Union, the entire Iran-USSR boundary has at no time been jointly recognized in practice by both countries. Against this background the two countries, on 2 December 1954, signed a Convention that purported to solve all existing boundary problems and provided for the completion of the boundary demarcation within 18 months after the date of signing, roughly by June 1956. Despite the agreement, there was some reluctance on the part of both countries to demarcate the boundary jointly.

Attitudes Toward De Jure Boundary

Iranian opinion on the virtues of a de jure boundary has varied sharply. At the time of the signing of the 1954 Convention, both the Foreign Minister and Minister of War felt that the establishment of a de jure boundary was especially desirable because, in the event of future incidents, the Soviets would not be able to plead ignorance concerning the location of the boundary. Members of the Iranian General Staff were less concerned with the achievement of a legal boundary throughout its entire length than with the location of the boundary in specific localities, notably near Dyman. The concern with specific areas was based on the knowledge that the Soviet Union was continuing its attempts to secure more favorable locations for border observation posts, particularly west of the Caspian Sea, which would make Soviet observation of Iranian Army personnel easier and penetration into the Soviet Union harder.

In its appraisal of a de jure boundary the Iranian Majlis, or Parliament, was motivated by less realistic considerations. Although cognizant of the views of the Foreign Minister, many members of the Majlis Foreign Affairs Committee were relatively unimpressed with the idea of the de jure boundary because it would confirm some of the Russian encroachment during the nineteenth century. In this attitude, members of the committee may have been less concerned with irredentist claims than with the idea of striking a better bargain, a common Iranian tendency. Many other Majlis members were either indifferent to or misinformed on boundary issues. The only Majlis member to speak against the 1954 Convention was the irrepressible Mostafa Kashani who, like many of his fellow Iranians, claimed to see in it continued exploitation by the British and Soviet Governments.

Soviet opinion on the virtues of a de jure boundary has shown none of the division of opinion that characterized the Iranian. There have been periods -- both short and long -- during which the Soviet Union was anxious to keep the boundary status unsettled or fluid. After World War I, the USSR refused to implement the boundary provisions of the 1921 Treaty; after World War II, it actively encroached upon Iranian territory. Seldom did the Soviet Union give up territory the Tsars had won. The United States Embassy at Tehrān has remarked that the Soviets apparently did not consider the establishment of a de jure boundary as a matter of great importance in itself

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since Soviet representatives had interrupted negotiations several times in the past few years for tactical or political reasons rather than technical or substantive ones.

The Boundary Problem and the Areas Involved

The general alignment of the Iran-USSR boundary was established during the Tsarist regime.\* The first complete definition of the boundary west of the Caspian Sea appeared in the Treaty of Turkmanchai in 1828; this was followed by demarcation in 1829. The Akhal-Khorassan Convention in 1881 described the boundary east of the Caspian Sea from Gasan-Kuli Bay to an oasis east of the present city of Ashkhabad. From this point to the frontier with Afghanistan the boundary was described by the Convention of 1893, which gave Russia the village of Firuze. Most of the boundary defined in 1881 was demarcated in 1886, but it has taken the Iranians about 7 decades to acknowledge the validity of that action. The 1893 Convention was followed by demarcation provisions contained in 1894 agreements.

In 1921 the Soviet Union signed a Treaty of Friendship with Iran, which professed to reverse Tsarist policy and to embark on a more "enlightened" course. This treaty would, if implemented, have given back to Iran land along the lower Atrek River and the Firuze area in the Kopet Dag (mountains). The Soviet Government never

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\*For a more detailed account of the early agreements see CIA M-15 USSR-Iran Boundary, February 1951.

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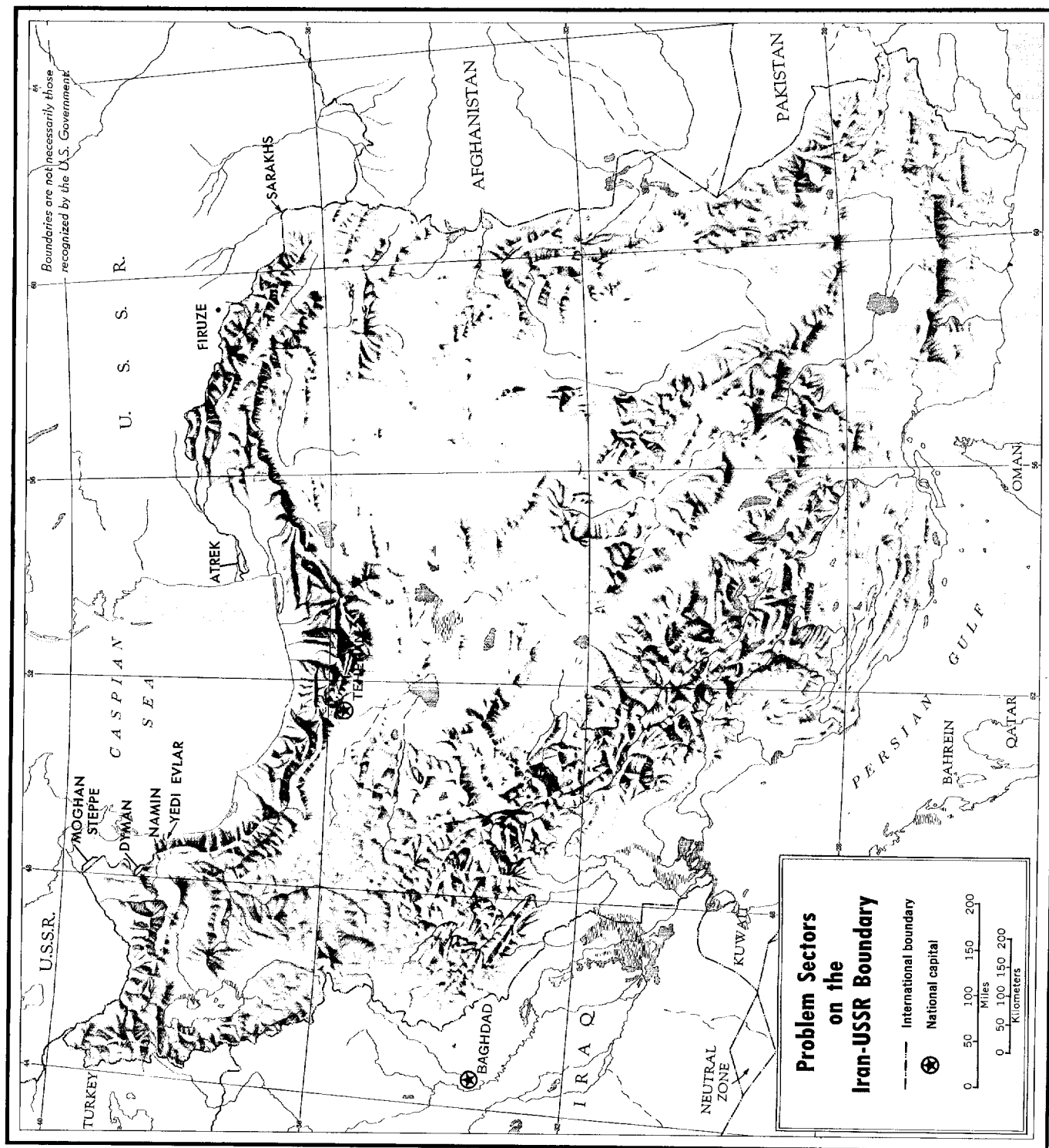
implemented the boundary provisions of the 1921 Treaty but from time to time has insisted that Article VI of the treaty gives it the right to occupy Iran in the event that a third power were using Iran as a base. No further legal boundary change occurred until 1940, when the USSR signed an agreement with Iran in which the boundary on the Caspian Sea was established as a line drawn from the termination points of the land frontiers on the eastern and western shores. North of the line was USSR territory, and south of the line was Iranian territory. No further agreements were made until 1954.

According to the 1954 Convention the boundary demarcation was to be completed within 18 months. Since then, demarcation has been proceeding -- at times unilaterally. To be effective any demarcation should be a joint effort. The Iranians are handicapped by a lack of competent demarcation officials, maps, and familiarity with the problem, a situation they themselves recognize. On the other hand the Soviets know how to demarcate, where to demarcate, and what the Soviet objective of any particular demarcation is.

According to the terms of the 1954 Boundary Convention, related boundary adjustments were made in each of the following problem areas:

Moghan Steppe: The new line in this area closely approximates the original line demarcated in 1829, except in the north. Here the new boundary meets the Aras River west of the original point in order to place the mouth of a Soviet-constructed canal within Soviet territory.





Dyman Sector: The new line cuts off a salient of Soviet territory that extended into Iran, including a ridge that provided the Iranians with an observation point for noting the activities of Soviet border guards. This concession was probably designed to make the boundary adjustments in the Namin and Firuze areas palatable to the Iranians.

Namin Sector: The adjusted boundary confirms Soviet encroachment westward into an Iranian area in which the Soviets had built about 70 kilometers of dirt roads for border-patrol purposes. The original demarcation had followed the crest of a ridge line with extremely steep eastern slopes along which the construction of border roads would have been difficult. According to the agreement, the USSR retains some 11 kilometers of the border-patrol road and is allowed to build connecting roads higher up the western slope toward the ridge line, which they now control.

Yedi Evlar: Here the new boundary eliminates a Soviet territorial outlyer on the southern bank of the Astara River. This outlyer is the result of a shift in the course of the river. Two disturbing features about the new line are: (1) on a definitive map attached to the agreement, two additional areas are shown as Soviet territory; although the Iranians claim that these areas are not Soviet territory, the map does not warrant this conclusion; and (2) the protocol regulating the boundary in this area states that the cession to Iran of Yedi Evlar is considered an exception to the rules and

practices of international law; it is therefore possible that the Soviets ceded the Yedi Evlar area only to plant on the Iranians another claim (involving the two additional areas).

Atrek River: The new line is a compromise between Iran and the USSR; it eliminates a shifting-watercourse type of boundary and establishes a straight-line segment boundary.

Firuze Sector: The Convention retains the present boundary line whereby Firuze and adjoining areas are a part of the Soviet Union. Thus the Soviets formally renounce the provision of the 1921 Treaty on Firuze, a provision which would have given Iran a tactical salient into Soviet territory.

Sarakhs Sector: The new line gives Iran a small bit of worthless territory to which the Iranians could never have laid legal claim. This was obviously a Soviet gesture in return for Iranian concession elsewhere along the boundary.

#### The Caspian Sea Boundary

The 1954 Convention made no mention of a boundary on the Caspian Sea, undoubtedly because this boundary had been settled in 1940 by an agreement between Iran and the USSR. There is no indication that this agreement has been nullified or superseded. On the other hand, there is every indication that it is still in force. Iranian behavior toward this sector of the boundary is incomprehensible.

The Iranians have stated that "in practice" the USSR has regarded as Soviet territory that portion of the Caspian Sea that

lies north of a straight line connecting the points where the international frontier reaches the eastern and western shores and that in recent times the Soviet Government has not taken any action which would indicate that it regards the portion of the Caspian Sea lying south of such a line as anything but part of Iran. This corresponds exactly with the terms of the 1940 agreement.

The Iranians state that the question of a boundary on the Caspian Sea never arose during the negotiations. The Director General for Political Affairs of the Iranian Foreign Ministry even asserted that, had the question arisen, the Iranian delegation was authorized to claim that the frontier on the Caspian Sea was a straight line connecting the extremities of the land frontiers. If this view had been challenged by the Soviets, the Iranians were prepared to agree upon a frontier that followed the Iranian coastline. As recently as March 1955, the same individual was heading a committee created specifically to consider what alternatives Iran should advance first should the question arise in the future.

Not content to let matters rest here, the Majlis on 25 June 1955 passed a law regarding the continental shelf. A note attached to Article II of this law states: "With respect to the Caspian Sea, the principles of International Law pertaining to inland waters will be considered applicable." The officer in the Ministry of Foreign Affairs responsible for the draft admitted to a United States official that no generally accepted bodies of international law

applied specifically to "inland waters" and that the intent of the draft was to allow the Iranian Government freedom to reach legal definitions that applied not only to the continental shelf, but also to all other aspects of sovereignty over the Caspian Sea through Conventions negotiated with the USSR. The Soviet Union, however, is well aware of the location of the boundary on the Caspian Sea.

Summary of Soviet Boundary Policy Toward Iran

In its boundary policy toward Iran the Soviet Union has not lost sight of its larger objective of incorporating Iran within the Soviet sphere of influence. The boundary policy has been merely one facet of this larger objective. Far from reversing Tsarist frontier policy with Iran, the Soviets have continued it at almost every opportunity.

Throughout most of the negotiations the Soviet boundary policy has remained flexible in order to be adaptable to the needs of the moment. During the Soviet occupation of northern Iran during World War II, the boundary was swallowed up; west of the Caspian Sea, it did not operate as a boundary between sovereign states until 1947. During the war and immediate postwar years the boundary was not important, being completely eclipsed by the Soviet attempt to incorporate Iran into the Soviet sphere.

The reestablishment of a true international boundary between Iran and the Soviet Union soon resulted in boundary incidents. These flared into the open in 1949 and reflected the Soviet desire for a fluid boundary at that time. Soviet encroachment became noticeable

even to neutral observers. From 1949 onward the Iranians, despite irredentist opinion, seem to have been willing to settle the issues, albeit after a little bazaar-type maneuvering.

The establishment of the Mossadeq Government in Iran saw a change in Soviet policy, along with evidence of a desire to establish a legal boundary. On 10 August 1953 the Soviet Government had gone so far as to agree to the setting up of a Joint Iranian-Soviet Commission, according to the Iranian Ambassador to Moscow at that time. In explanation, the United States Embassy in Moscow stated that the negotiation would aid in paving the way for a Tudeh communist-led regime in Iran. If the Soviets had acceded to Iranian irredentist demands and if Iran had later become a satellite, this concession would have become worthless since a boundary between the USSR and a satellite is more like a policed provincial boundary than one separating sovereign states. On 19 August 1953, however, the pro-American Zahedi Government replaced that of Mossadeq, and boundary negotiations ceased.

Negotiations began again, but languished after the Soviets delivered a *démarche* on 8 July 1954 about Iran's alleged intentions of joining a Middle East Defense Organization. The Iranians also recognized a hardening of the Soviet attitude after security measures against the Tudeh party were stepped up in the fall of 1954. The conciliatory Soviet attitude that followed immediately during the same fall may well have depended on the face the Soviet Government

wanted to present to the outside world -- a great power willing to settle differences with a small power around a conference table. The Convention was signed on 2 December 1954.

With Iranian adherence to the Baghdad Pact in November 1955, Soviet demarcation officials began treating their Iranian counterparts with contempt. Demarcation talks proceeded on a friendlier basis in 1956, and field work is presumed to have been completed in the latter part of the year.\* Circumstances indicate that boundary problems will remain. Three conclusions may be drawn from the history of the Soviet-Iranian boundary negotiations: (1) the Soviets have compromised on sections of the boundary, (2) they have not given up any important territory, and (3) they have consistently correlated boundary policy with their larger objectives.

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\*According to Iranian and Soviet press releases of 27 February 1957, a joint communique announced that the exchange of territory implementing the 1954 Convention was accomplished in January and February 1957.

SOVIET INTERFERENCE WITH ALLIED ACCESS TO BERLIN

The recent harassment of Allied military rail and road traffic to Berlin reemphasizes the capability of the USSR to interfere with the movement of goods and persons in a divided Germany and highlights the vulnerability of West Berlin. Whatever the reasons for the harassing actions, the East is now able to obstruct (or stop) all land traffic to Berlin without fear of interference to its own internal traffic. On the other hand, all Allied personnel and goods traveling between the Federal Republic of Germany and West Berlin are forced to cross more than a 100 miles of Communist-controlled territory over certain designated routes.

Since the 1948 blockade the East German Government has eliminated several of the West's important counter blockade possibilities by developing a transport system that is not dependent upon transit through West Berlin. Although no major blockade is apparently intended at present, the recent completion of a rail ring around Berlin and the building of a circumferential canal during the last few years have strengthened the East German position materially (see Map 25876).

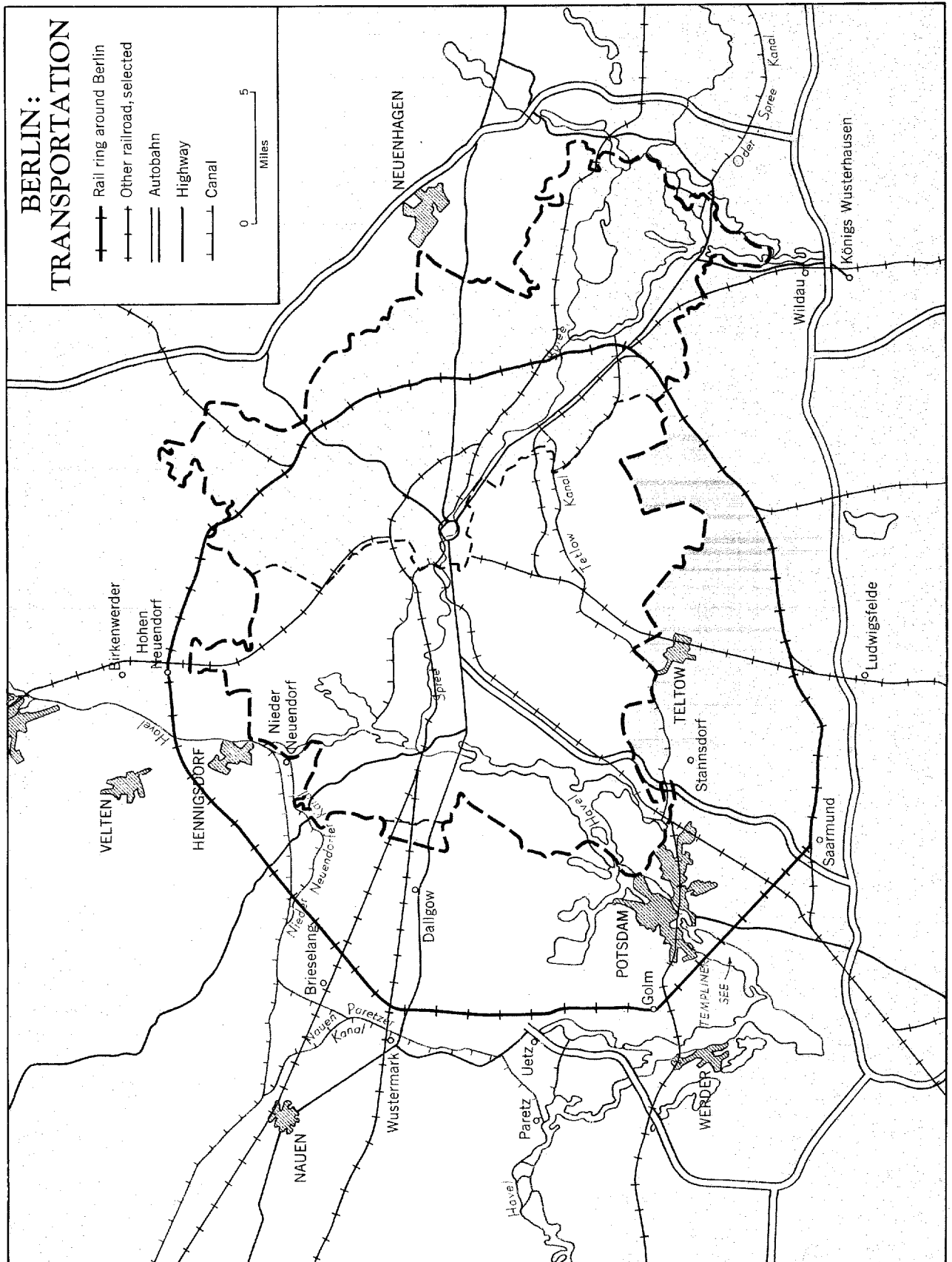
The approximately 14.5-kilometer (9-mile) stretch of railroad between Golm and Saarmund, the last gap in the East German railroad ring-around-Berlin, was nominally opened to traffic in October 1956, thus completing the 185-kilometer (115-mile) railroad that encircles the entire city. Though the plan to create a railroad detour around



Berlin antedated World War II, the division of Berlin at the end of the war gave added impetus to the project. Soviet authorities were anxious to establish the bypass in order to conceal East German traffic from Western observers and to prevent the inhabitants of their own sector from coming under Western influences.

Serious preparations for the construction of the railroad ring date back to the time of the blockade of West Berlin in 1948-49. In its early stages work on the new bypass was not publicly recognized as such, and the orders issued for construction projects did not reveal their true purpose. Much of the new ring follows secondary stretches which were already in operation before 1945 but which had to be expanded and improved to meet the new demands. Because of the heavy traffic, particularly freight, that the new ring is expected to carry, double tracks have been planned for the entire length.

For propaganda reasons, completion of the bypass later had "top priority" over all other construction projects. Work on the southern section of the Berlin outer ring was accelerated by promises of special awards and bonuses. Because of pressure for completion, the standard practice of settling the filled-in right-of-way by the use of machinery was omitted; instead, trains passing over the fill were expected to produce the same effect. Since time was the essential factor, the fact that tracks might lose their proper gauge (4' 8-1/2") and that derailments might occur was disregarded. Immediately after the line was put into use, this makeshift practice



resulted in the collapse of the eastern abutment of the embankment and bridge over the Templiner See (Templin Lake) and has caused a temporary interruption to rail service over the Golm-Saarmund section.

In addition to the outer railroad, the final sector of the circumferential canal -- the Paretz-Nieder Neuendorf bypass -- was completed in 1952. The bypass is 34.9 kilometers (21.7 miles) long, 33 meters (108 feet) wide, 3 meters (9.8 feet) deep, and is regulated by a single lock located about 9 kilometers (5.6 miles) west of Nieder Neuendorf. This sector, which was planned to handle 1,000-ton ships, also provides the shortest connection between the Oder and Elbe Rivers. The canal makes it possible for water traffic originating in East Germany to move freely during an international crisis without entering West Berlin, but the travel time is greater than that required on waterways passing through western territory.

The completion of the Berlin Autobahn would provide East Germany with a third possibility of circumventing Berlin. At present, Berlin has an Autobahn along its outer periphery, but this ring does not completely surround the city. Present plans visualize an express ring in the inner city, which will utilize the areas cleared as a result of war damage and will have radial feeders to the Autobahn ring.

The latest and most dangerous in this series of developments came with the negotiations of 7 January 1957, when the Soviets granted East Germany "full sovereignty" over its air space.

Although the continued use of the air corridors by Allied powers is held to be valid, there is no guaranty that the existing quadripartite agreements will be upheld in the future. Western use of East German air corridors is characterized as both "temporary and limited." The USSR, although recognizing the serious possibilities involved in any infringement of Allied air rights, is now in a position to sit back and permit the East Germans to employ some type of control over Western commercial air travel to Berlin. The USSR could refuse to intercede on the basis that East Germany is simply exercising its sovereign power. Such a move might have the desired effect of forcing the recognition of East German sovereignty by compelling the Allies to engage in direct negotiations with East Germany or be subjected to Communist pressures. A possible means of Western reprisal -- the use of economic sanctions against East Germany -- is viewed with apprehension in Bonn because of the knowledge that West Germany would be the principal loser if the East Germans countered by halting the flow of brown coal.

The policy of obstructing Allied military rail and road traffic continues to pose a major threat to Berlin. The Western powers can expect to be faced with harassments of this nature whenever the Soviet Union is desirous of pressing any of a number of political objectives, such as attempting to test Allied solidarity after the Suez crisis or to gain recognition of East German sovereignty. Any limitation of Allied rights to the air corridors would interrupt

the life-line that supported West Berlin during the blockade of  
1948-49 and would create a critical situation with grave implications.

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THE FRENCH OIL SITUATION\*

Since the end of World War II, consumption of petroleum products in France has tripled; the processing capacity of French oil refineries has nearly quadrupled; the dead-weight tonnage of the French tanker fleet has more than doubled; and a new pipeline network has been established. Although continental France is now self-sufficient as far as refined products are concerned, it will continue to be dependent upon outside sources for most of its crude oil. Even before the Suez crisis in the fall of 1956, domestic crude was supplying less than 5 percent of domestic requirements, and the most optimistic French estimates set a long-range goal of only 20 percent. By cutting off more than 90 percent of the crude oil supply, the Suez crisis forcefully emphasized the dependence of French industry and transport upon imported oil. It also emphasized the fact that the French economy was at the mercy of political developments in the Near East. Although France owns 23.75 percent of the Iraq Petroleum Company (IPC), it has been unable to obtain its share of oil from Iraq. Political uncertainty in North Africa, too, particularly in Algeria, has been one of several factors delaying the immediate development of potentially productive concessions in Africa.

In the current French Government plan to revitalize economically depressed regions through the relocation of many industries and the introduction of new industries into areas such as Bordeaux, availa-

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\*This article has been coordinated with the Petroleum Branch, Materials Division, ORR.

bility of fuel is a major factor. Coal, always in short supply, is becoming scarcer. The water power resources of France are substantial; but hydroelectric development, which has expanded very rapidly since World War II, had virtually reached its maximum by 1956. Although France is one of the leading countries in the experimental development of nuclear energy, practical use of this source of power is not foreseen within a decade or so and will always be limited if wholly dependent upon known deposits of uranium within France. Despite mild opposition from industries geared to it, coal is steadily being replaced by petroleum. Inland water transport, carrying more than half the country's inland freight, is almost entirely dependent upon oil. Obviously, the development of an efficient industrial economy is particularly sensitive to the availability of fuel oil, lubricants, and gasoline.

The existence of oil in many parts of France has been established recently, but spectacular discoveries have been made only in the southwest, near Bordeaux. Current refinery capacity is sufficient for requirements within the foreseeable future, and the location of the two existing complexes, the planned expansion of the Bordeaux refineries into a third major complex, and the proposed inland refinery in the northeastern part of the country is sound from both shipping and industrial points of view. From an international point of view, the strategic value of France as a storage and supply area for military fuels has not diminished within the past few years, and two of the three new pipelines are designed to meet this military need. Should this need be dissipated, however, the pipelines could

still serve the civilian economy effectively. The fact remains, however, that France must depend upon sources beyond her continental limits for 80 to 95 percent of the crude oil needed to supply her rapidly increasing domestic requirements.

#### Exploration Activities

In 1953, widely separated concession areas had been granted to six oil companies and covered no more than a quarter of the sedimentary-basin areas of continental France. By the end of 1954, most of these concessions had been expanded, and a large part of a hitherto unexplored area -- the Paris Basin -- had been opened up for exploration under new concessions. By the end of 1955, almost all of the sedimentary areas, about half of continental France, were covered by 68 exploration concessions granted to or requested by 20 oil companies (see Map 12616, Revised).\*

Many of the concession requests overlap and boundaries are currently being adjusted by the French Government, which grants all titles and permits for petroleum exploration and exploitation. The Government, itself a large stock holder in all French oil companies, also regulates company operations within a concession to the extent

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\*Aside from concessions granted to the 14 companies shown on Map 12616, Revised, concessions have been requested by the following companies: (1) Sté. Nationale des Pétroles d'Aquitaine; (2) ESSO-REP; (3) S.A. Pétroles du Centre-Ouest; (4) Sté. de Prospection et Exploitations Pétrolières en Alsace; (5) Cie. Française des Pétroles de Normandie; (6) OMNIUM Lyonnais; (7) Shell Française; (8) Sté. d'Études Pétrolières; (9) Mobiloil S.A.F.; (10) S.A. Française de Recherches et d'Exploitations Pétrolières.



of requiring the holder of an exploration permit (1) to execute in a manner approved by the Chief Engineer of Mines the work necessary to prove the existence and exploitability of structures revealed by exploration, and (2) to release to the Government 50 percent of the concession area held at the time a 5-year exploration permit is renewed.

Since the Parentis oil strike in 1954, productive wells have been drilled in three other promising new fields in southwestern France as well as in the previously established fields at Lacq and St. Marcet. There are indications that exploratory underseas drilling along the Atlantic coast may establish the existence of extensive offshore beds. Outside the Aquitaine Basin, the presence of oil has recently been established in the Paris Basin, the Rhine Valley, and in the Jura foothills. Commercial exploitation has not progressed far, however, and it is impossible at this time to assess the eventual value of these areas to the French oil industry.

#### Crude Oil and Natural Gas Production

The post-World War II shift in the crude-oil production center from northeastern to southwestern France was precipitated by the discovery of the Lacq oilfield in the Pyrennees in 1949. This discovery and the subsequent exploitation coincided with the rapidly decreasing production of the almost depleted Pechelbronn wells in Alsace.\* In 1953 the Société Nationale des Pétroles d'Aquitaine

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\*Pechelbronn production was only 45,845 tons in 1953; by 1955 it had dropped to 35,704 tons. Measurements are given in metric tons throughout this report.

(SNPA) production of 307,945 tons, chiefly from Lacq wells, contributed heavily to the French total production of 368,745 tons. Since then, however, by far the heaviest crude production has come from the Parentis field in the Landes, discovered in 1954.

Of the 1955 total of 875,661 tons produced in France, 576,497 tons came from the Esso wells at Parentis and nearby Mothes, which by the end of the year were producing at the rate of about 17,000 barrels per day. Toward the end of 1956, the Parentis field was producing almost 25,000 barrels per day or more than a million tons annually -- more than the total French production for 1955. It is estimated that although the Parentis field will eventually level off at an efficient normal rate of 40,000 barrels per day, the rate could be increased to 100,000 barrels per day under emergency conditions. Recoverable reserves at Parentis and Mothes are estimated to be at least 20 million tons. Although there are indications that productive oilfields may be developed in other parts of France, reserves have not yet been established and the current production of crude oil outside the Aquitaine Basin is negligible.\*

Up to now, natural gas in France has been of minor importance. Almost all of it has been produced and consumed in southwestern France. Although production has increased steadily during the past few years, consumption represented only 1 percent of the total national fuel

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\*Statistics from Pétrole: Elements Statistique Année 1955, Comité Professionnel du Pétrole, Paris, May 1956.

consumption. Practically all of the gas has been supplied by the St. Marcet field and has been distributed through the Pau-Bordeaux pipeline system. However, the very large reserves of the nearby Lacq field -- which are currently estimated at 125 billion cubic meters but which may prove to be 300 billion cubic meters -- are beginning to replace the diminishing reserves at St. Marcet. A major French Government-sponsored plan for the industrial development of southwestern France is based largely upon the resources of the Lacq field, from which an abundance of relatively cheap fuel will be readily available. Chemical plants, utilizing refined gas for fuel and other gas derivatives as raw materials, will manufacture plastics, synthetic rubber, sulphuric acid, heavy water, and possibly carbon black. Also in various stages of planning are aluminum, steel, and cellulose plants, and lumber and paper mills. The discovery in October 1956 of a natural-gas field at Lons-le-Saunier, which promises to be much more productive than others in the Jura area, may lead to large-scale production in eastern France.

#### Refinery Capacities and Production

At present, total French refinery capacity is the largest in Western Europe and is adequate for any foreseeable future domestic need.

The areal distribution of refineries in France, which has remained unchanged since before World War II, will be significantly altered by the construction of a proposed 500,000-metric-ton-capacity

refinery in the Strasbourg area. The refinery has been under discussion for some time, and part of the funds required for its construction have been allocated; but work has not yet been started and no estimate has been made of the completion date. The construction of a new Esso refinery of 2-million-ton capacity at Ambès, near Bordeaux, which is to be in operation before 1960, will not alter the geographical distribution pattern since small refineries have been located on the Gironde for many years. However, the location of the new plant near the Parentis field will probably contribute toward the development of the Bordeaux area into a third major refinery complex in France. The other major complexes -- along the Lower Seine near Le Havre and on the Étang de Berre near Marseille -- are likely to continue as areas of refinery concentration. The Lower Seine complex (Gonfreville, Port Jérôme, Gravenchon, and Petit-Couronne) has the advantage of being near the heavily industrialized North, and the Étang de Berre complex (Lavera, La Mède, and Berre) is near the crude-oil supply from the Near East and the potential supply from North Africa. During 1955 the Lower Seine refineries processed about 37 percent of the national total (23,045,900 tons) and the Étang de Berre refineries about 36 percent. Aside from the very small amounts of oil refined at Merckwiller and Frontignan, the balance of the national total was made up in almost equal amounts by the production at Dunkirk, at Donges, and along the Gironde (the combined output of Pauillac and Ambès).

The increase in refinery capacity and production during the past few years is due in large part to substantial plant expansion. This is in line with the general trend of refining oil near the areas where it is to be consumed rather than in producing areas.\* Since June 1953, new catalytic cracking units have been completed at Berre, Donges, Dunkirk, Gravenchon, La Mède, Petit-Couronne, and Port Jérôme; others are under construction or projected for Ambès, Donges, Dunkirk, Gonfreville, and Port Jérôme. A thermal cracking unit was built at Donges. Additional distillation units have been completed at La Mède and Port Jérôme and are planned for Dunkirk and Lavera. Other new installations include a propylene polymerization unit at Port Jérôme, a platforming unit at Lavera, and asphalt plants at Donges and Dunkirk.

The petrochemical industry in France has been revolutionized since World War II as demands for entirely new products have developed, along with the increasing demands for standard products long imported. The largest plant, which is primarily a naphtha feedstock plant producing methane, ethylene, and propylene, has been built at Lavera. Butylene is processed at other plants in the Lower Seine complex, cumene and benzene at Donges, and phenol and acetone at La Mède. New plants to produce these and many other petrochemicals are under construction or projected for locations near established refineries, and others are proposed for the new refineries at Ambès and Lacq.

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\*See Geographic Intelligence Review, CIA/RR-MR-50, May 1956, "Petroleum-Refinery Location in the Free-World Eastern Hemisphere."

A carbon black plant designed to utilize the almost sulphur-free Parentis oil has been proposed for the Bordeaux area.

Operations in the Lacq field, discovered in 1951, have been extremely difficult, at times dangerous, partly because of the physical characteristics of the field and the presence of poisonous gases but chiefly because of the very high hydrogen sulphide content of the gas. Several years experimentation were necessary before a satisfactory corrosion-resistant special-alloy pipe was developed and the commercial operation could be started. The original disadvantages of the Lacq gas, however, are proving to be a substantial asset by providing sulphur -- which is of great value in reducing French imports -- as well as fuel. New processing installations, which will begin operations in 1957, are expected to process 4 million cubic meters crude gas daily by 1958 and to increase to 10 million cubic meters by 1960. Products derived from a daily input of 1 million cubic meters of crude gas include an annual total of 200,000,000 cubic meters refined gas, 55,000 tons liquid and solid sulphur, 3,200 tons propane, 4,200 tons butane, and 12,000 tons gasoline.

#### Pipelines

Since 1953, two of the three pipelines in France -- one commercial (TRAPIL) and one military (USA) -- have been completed; and the third, also a military line (NATO), is under construction. A

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natural-gas pipeline extending from Pau to Bordeaux serves the southwestern part of the country.

The TRAPIL (Société des Transports Pétroliers par Pipe-Line) finished-products 10" pipeline from Le Havre to the Paris area, which was established under the Monnet Plan in 1949, is the only commercial-products pipeline in France and the first of its kind in Europe. It operates as a common carrier and has been in service as far as the northwestern suburbs of Paris since the spring of 1953. In April 1954, the line was completed to the final Juvisy terminal south of Paris. Four pumping stations are located along the 150-mile line -- at (1) Le Havre (Compagnie Industrielle Maritime terminal), (2) Gonfreville (Compagnie Française de Raffinage refinery), (3) Port Jérôme (Esso Standard and Socony refineries) and (4) Petit-Couronne (Shell refinery). In the Paris area, 12 terminals serve 30 tank farms owned by petroleum distributors. The annual capacity of the TRAPIL pipeline (approximately 1,500,000 tons) exceeds the present consumption of the area it serves by about half a million tons.

Plans for a commercial-products pipeline from the Étang de Berre complex (Marseille to Strasbourg via Lyon and Basel, Switzerland), have been under consideration for several years but progress is unlikely for some time. More recently, a proposal to build a 30" crude pipeline about 700 miles long from Marseille to Wilhelmshaven (Germany) or to Rotterdam (Netherlands) has been advanced by a group of French, German, and Dutch companies recently organized as the Société Civile

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d'Études du Pipeline Méditerranée-Rhin (SOPIMER) with headquarters in Strasbourg. Funds have been approved for the German part of the pipeline, and work on the Wilhelmshaven-Cologne section is expected to begin in the spring of 1957. A smaller lateral line from Paris to Strasbourg, crossing the main line at Nancy, is also under study. Such a crude pipeline would shorten the haul from Near East oilfields to the refineries of Western Europe and would permit the construction of new refineries near established industrial centers in the interior. The degree of existing and foreseeable political stability in the Near East will understandably affect the rate of progress on this particular project.

Not all commercial crude lines are shown on Map 12616, Revised because of scale limitations. They include a 53-mile pipeline from Le Havre to Petit-Couronne, a 33-mile line from Port Bouc to La Mede and Berre, and a number of short lines from producing fields to storage and shipping points. The construction of a crude line from the Parentis field to the mouth of the Gironde Estuary, which has been under discussion since 1954, seems probable since tankers larger than 18,000 tons cannot navigate the channel into the port of Bordeaux.

The military pipeline from Donges to Metz, built by the Joint Construction Agency under the supervision of the United States European Command, was completed on schedule in June 1956. The pipeline, approximately 400 miles long, has a 12" pipe from Donges to Chalons-sur-Marne and a 10" pipe from there on to Metz. Pumping



stations will be located about 50 miles apart. The first of four storage areas has been completed at Melun and the other three are under construction. The capacity of the 12" section of the pipeline is about 4,000 barrels per day and that of the 10" section about 2,700 barrels. This line, which will be connected with the NATO line at Châlons-sur-Marne, will carry only military fuels.

That part of the extensive pipeline network of the NATO Common Infrastructure POL Installations that lies within France is shown on Map 12616, Revised. Although portions of the lines in both northern and southern France are under construction, no major section had been completed as of 31 March 1956. The network consists of two main pipelines, one from the Atlantic and one from the Mediterranean, which will converge at Langres, not far from Dijon. The first, a 10" line, will extend from Le Havre to Cambrai (with an 8" connection from Dunkirk to Cambrai), continue to Châlons-sur-Marne where it will join the Donges-Metz line), and terminate at Langres. The other, a 12" pipeline, will extend from Marseille to Langres, with a 10" extension connecting it, via Phalsburg, with the German line terminating at Mainz. From this extension, 8" branch lines will be laid to Belfort and Metz and probably to Strasbourg. Other branch lines will connect the French system with the Germany-Benelux network. The NATO line from Marseille to Mainz and the proposed SOPIMER line from Marseille to Cologne are roughly parallel and, under emergency conditions, the finished-products pipeline could

be used for crude. However, the capacity of the 10"-12" NATO finished-products line falls far short of the 30" SOPIMER crude line. Fourteen NATO storage depots are under construction or planned.

The operating section of the 500-mile natural-gas pipeline from Pau to Bordeaux is substantially the same as it was in 1953, but additional lines have been projected. Construction has been authorized (May 1956) for only one of the projected sections -- Pau to Bayonne. The pipelines from the St. Marcet and Lacq fields, however, are to be interconnected. The new sections will be constructed by the SNGSO (Société Nationale des Gaz du Sud Ouest), an affiliate of SNPA (Société Nationale des Pétroles d'Aquitaine) and RAP (Régie Autonome des Pétroles), which also will be responsible for the operation of the entire network. Although an early proposal to build a fuel-gas pipeline from Lacq to Paris or Brittany was abandoned in favor of establishing new industries near the Lacq field, three new proposals are currently under discussion. All three proposed pipelines would terminate at Paris, running via (1) Bordeaux and Nantes; (2) St. Etienne and Lyon; and (3) Montluçon, with branches to Nantes and Lyon.

#### Imports

Although France hopes to supply at least 20 percent of the national crude requirements from domestic sources within a few years, less than 5 percent of the petroleum refined in 1955 came from French fields. Because French consumption has increased more rapidly than

local production, imports of crude oil have risen from 21,982,500 tons in 1953 to 24,738,300 tons in 1955. Small amounts of crude oil were imported from the Western Hemisphere and the Bloc countries, but more than 90 percent of the imports came from the Near East, chiefly from Iraq, where the French Government-owned Compagnie Française de Pétroles (CFP) holds 23.75 percent interest in the Iraq Petroleum Company (IPC). Until the Suez crisis and the consequent sabotage of the IPC pipeline through Syria, oil from Iraq came through the IPC pipeline to Mediterranean terminals in Syria and Lebanon and was then shipped to Marseille in French tankers. The French share of IPC production was about 200,000 barrels a day, but was expected to increase to about 300,000 barrels by 1960. At present, no prediction as to how soon that figure will be reached can be made with any assurance. Almost as much crude oil was shipped from Kuwait and Saudi Arabia via the Suez Canal. Not only did imports of crude oil increase between 1953 and 1955, but imports of products, chiefly from the Western Hemisphere, also rose -- from 477,200 tons to 941,800 tons.

Since the end of World War II, many oil tankers have been added to the French Merchant Marine, and the percentage of crude transported by the French petroleum fleet has increased enormously. In 1945, France transported only 8 percent of its crude oil imports. By 1953 the percentage had been increased to 55 percent, and by 1955 to more than 65 percent of the total. Until very recently, however, France has placed emphasis upon relatively small tankers, seldom exceeding

16,000 tons, which are well suited to short Mediterranean runs. In 1956, however, 11 tankers of 30,000-to 40,000-ton capacity were in use and 11 more were under construction. Supertankers of 50,000 to 100,000 tons, designed primarily for the Cape of Good Hope route, are still under construction or in the planning stage.

Summary

Changes in the French petroleum situation within the past few years include great expansion in concessions for exploration and exploitation, substantial increases in domestic production of both crude oil and natural gas, increased refinery production, and the construction of three new pipelines.

Although domestic crude-oil production in 1955 was 138 percent more than in 1953 and is likely to continue to increase, it still represents only about 5 percent of the national total of crude oil processed in France. Consumption of petroleum products in 1955 was about 25 percent higher than in 1953 and is expected to be doubled by 1965. The goal set in 1954 -- the production of 20 percent of national crude requirements from domestic sources -- has not yet been met, but the dramatically expanding fields and estimated reserves of southwestern France may produce enough to meet the goal provided consumption does not increase at an even more accelerated pace. No significant oil strikes have been made in other parts of France, although exploratory drilling continues in many sedimentary areas other than southwestern France.

Existing refinery complexes are well located on the Atlantic in the north and on the Mediterranean in southern France. When completed, projected refineries at Bordeaux and Strasbourg will provide an even better distribution pattern, especially for southwest and northeast. Refinery capacity continues to increase, largely through the installation of new equipment and better processing methods; distribution and storage facilities are greatly improved. Nevertheless, even under normal conditions France must continue to rely very heavily upon imports of crude oil to meet her domestic requirements.

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BRITISH BORNEO AS AN ALTERNATE SOURCE OF OIL  
FOR MALAYA AND SINGAPORE

The need for an alternate source of petroleum for Malaya and Singapore was emphasized during November by developments in Southeast Asia that underscored the world-wide implications of the Suez crisis.

The normal source for the bulk of the petroleum products used in Malaya and Singapore is Indonesia. During November the Indonesian oil unions in Sumatra, many of which are affiliated with the powerful Communist-controlled Indonesian labor federation, SOBSI, refused to permit the shipment of oil to Singapore and Malaya as a protest against the British military action in Egypt. According to the American Consul General in Singapore, this embargo would have brought transportation and the operation of powerplants to a halt in Malaya and Singapore within 10 days.<sup>1</sup> Fortunately, prudent pressures were apparently exerted, and the embargo has been partially lifted. The dire chain of events that might have been precipitated in troubled and uneasy Singapore and Malaya had the full embargo been prolonged includes immobilization of Commonwealth military forces and disruption of tin and rubber production.

The possibility of a recurrence of such an embargo focuses attention on a potential alternate source of oil for Singapore and Malaya, the fields at Seria in nearby Brunei and Miri in adjoining Sarawak. Together they constitute the largest oilfield in the British Empire (see Map 25861). The former is owned by the

1. State Department Despatch 540, Singapore, 15 November 1956, S.

British Malayan Petroleum Company and the latter by Sarawak Oil Fields, Ltd., both of which are affiliated with Royal Dutch Shell.

The combined output of the two fields for 1955 was 38,879,361 barrels of crude oil or about one-fifth of the United Kingdom's annual consumption for 1955. The Seria field provided all but 471,842 barrels, which was the production of the Miri field. Thirty-four new oil wells were drilled at the Seria field in 1955. At Miri, production is on the decline, and no new wells were drilled.

Exploration for new sites is continuing. In 1954, the British Colonial Office announced that the boundaries of North Borneo, Brunei, and Sarawak would be pushed out to sea to permit "exploitation of the natural resources of the continental shelf adjacent to their coasts." In addition to the three existing man-made "islands" a mile off the coast of Brunei, from which exploratory drilling has been undertaken for some time, two new and larger "islands" are being set up. One is located at Ampa Patches, a submerged coral reef 25 miles from the coast of Brunei. The second, arbitrarily called Siwa, is some 60 miles southwest of Ampa Patches and 8 miles from the Sarawak coast. The two new "islands" are similar in construction, the drilling section of each being about 160 by 60 feet, which permits the drilling of one vertical and three deviated wells. The drilling rigs will be capable of reaching a depth of 10,000 feet.

The combined 1956 petroleum requirements for Malaya and Singapore, on a crude oil equivalent basis, are estimated at about 3,660,000





long tons. This includes petroleum products for domestic consumption, bunkering, and aircraft fueling. Singapore also normally serves as an important oil entrepot, importing and reexporting large quantities of petroleum products. During the first 4 months of 1956, for example, some 501,713 long tons of gasoline were imported, chiefly from South Sumatra, Borneo, and Sarawak; and 402,900 long tons were reexported to New Zealand, the Philippines, Vietnam, and Australia. British Borneo's annual output of almost 5,200,000 long tons would appear to be more than ample to meet the domestic requirements of Malaya and Singapore, but it would not permit Singapore to maintain the current level of its entrepot trade in petroleum products.

Several other factors enter into the problem -- the lack of complete refining facilities in Malaya and Singapore, the current pattern of the oil trade, and the political affiliations of the employees of the oil industry.

Malaya and Singapore have no refining capacity. The only British Borneo refining plant -- at Lutong, Sarawak -- is merely a skimming plant that is incapable of a complete refining process. Its daily refining capacity of 47,500 barrels, however, could supply Singapore's petroleum needs except for high-octane gasolines and lubrication oils. Assuming that refining facilities at Lutong are not expanded or improved and that Indonesian refining facilities are denied to Singapore, it might be practical to meet its needs for high-octane gas and lubricants by increasing crude oil shipments from British Borneo to Australia,

where complete refining facilities are available, and then reexporting the needed high-octane gasolines and lubricants to Singapore.

The chief importers of crude oil from British Borneo have been Japan, the United Kingdom, the Netherlands, and Australia. In an emergency, existing contacts from these areas would probably be broken or customers would be exchanged through mutual agreement of oil producers. Thus, Indonesian oil could be diverted to non-Commonwealth nations that now import oil from British Borneo. With such changes, the present local oil-tanker traffic pattern would be altered, but the alterations should have little effect on the receipt of oil at Singapore. In compensation for the additional trips from British Borneo to Australia and back to Singapore, the long hauls to Japan or the Netherlands would be eliminated. If the recent release of "mothball" tankers by the United States relieves the world-wide tanker shortage sufficiently, it would be unnecessary to shift tankers from areas such as southeast Asia.

Of unknown strategic importance is the fact that some 1,800 out of 5,000 employees of the British Malayan Petroleum Company are Chinese. The loyalties of these overseas Chinese, who represent more than one-third of the total number of employees, could well be a critical factor in an emergency. (SECRET)

S-E-C-R-E-T

RECENT ACCESSIONS OF SOVIET CITY PLANS

Soviet authorities have consistently followed a policy of rigidly controlling the distribution of city maps, sketches, and plans. On the whole, the security controls they have imposed have been extremely effective. Even sketches in manuals and periodicals dealing with the principles of city planning were carefully sanitized so as not to reveal even fragmentary information on the layout of any Soviet town, no matter how unimportant it might be. The Atlas Mira (Atlas of the World), which was disseminated in 1954 to demonstrate to the non-Soviet world the high stage of development of Soviet cartography, is another example of the rigidity of security controls. Although the plan for the atlas specifically called for a map at 1:250,000 for each of the important cities of the world, such maps for Soviet (and Satellite) cities were noticeably and -- for the prestige-conscious Soviet bureaucrats -- awkwardly omitted.

In the last year or two, however, there has been a slight relaxation of censorship controls. Planning journals such as Arkhitektura SSSR (Architecture of the USSR), Arkhitektura i Stroitel'stvo Moskvy (Architecture and Construction of Moscow), and Gorodskoye Khozyaystvo Moskvy (Urban Economy of Moscow) now include sketches of newly constructed or redeveloped sections of cities, properly labelled and drawn precisely to scale. Soviet authorities have also permitted the inclusion of small-scale maps of Moscow, Leningrad, Kiev, and

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Minsk in the Bol'shaya Sovetskaya Entsiklopediya (Great Soviet Encyclopedia).\* Since the volumes containing the individual articles on these cities had been published several years earlier, the editors of the encyclopedia had to place the maps not where they were most appropriate but in a brief article on capital cities of the world -- a subject which would not normally include Leningrad. In a highly generalized way, these maps show the present extent of the cities and presumably the chief directions of expansion, but the small scale (1:250,000) of the maps severely limits their usefulness for any detailed study.

The issuance during the past few months of several Soviet-produced city plans suitable for the use of foreign tourists might also suggest a relaxing of controls. Up to the present, only the plans for Moscow, Leningrad, and Riga\*\* have been obtained. These, however, are similar enough to permit some generalizations.

At the outset, it should be emphasized that these plans are not "maps" in the true sense of the word. In the first place, the street pattern is incomplete; only the major streets are shown. Innocuous points of interest such as hotels and railroad stations are located, but the pictorial representations of them are so grossly exaggerated that even the locations of these buildings can be determined only

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\*Volume 41, 1956, second plate following page 32.

\*\*CIA Map Library, Call Nos. 55154, 55168, and 58123, respectively.

approximately. Geographic grids are completely absent, and no indication -- graphic, numerical, or verbal -- is given of scale.

There is good reason for scale omission, since the scale varies from one part of a plan to another. On the Leningrad plan, for example, measurements indicate scales ranging from 1:14,000 to 1:25,000. In general, the central part of town is shown at larger scales than the peripheral areas. This technique makes the plan almost completely useless for correcting large-scale maps (except for providing a few street names), or for establishing any geodetic control. The scale of the Moscow plan is somewhat more consistent, approximately 1:24,000 to 1:25,000 for more than three-fourths of the city. The scale, however, is reduced markedly in an east-west direction in the northwestern quadrant, between Khimki Reservoir and the Park of the Timiryazev Agricultural Academy. This reduction may have been used in order to bring the Northern Riverboat Station within the boundaries of the plan, to camouflage the location of the Central Airfield, or both.

Although these plans will probably prove adequate for the needs of the increasing numbers of foreign visitors to the Soviet cities, it is obvious that the official policy is still to restrict rigidly the disclosure of cartographic information. (CONFIDENTIAL)

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